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SLAUGHTERING, CUTTING, AND PROCESSING BEEF

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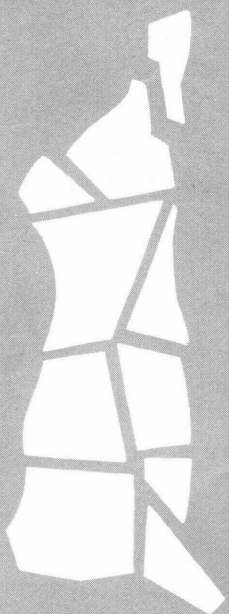

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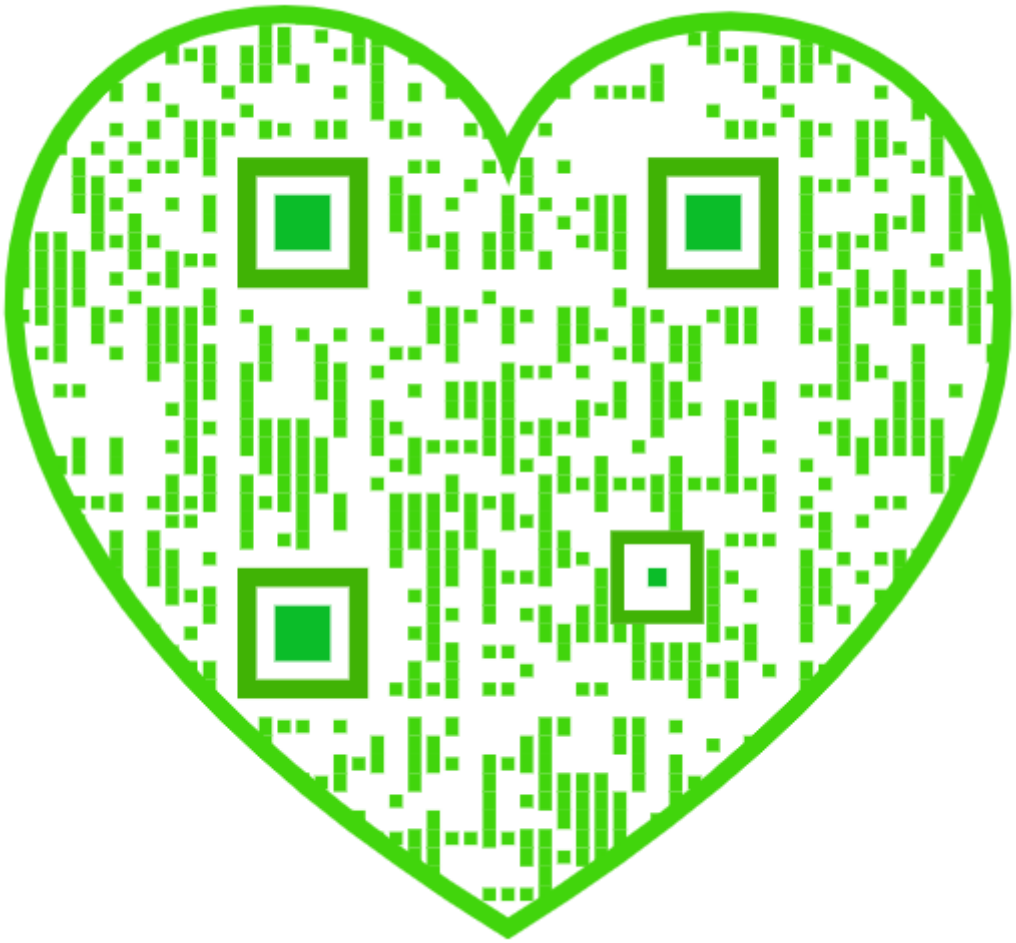

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PRECAUTIONS

Do not slaughter beef animals that have received an additive of diethylstilbestrol in their ration unless the additive has been withdrawn at least 48 hours prior to slaughter.

To control flies and other insects at the time of slaughtering, chilling, cutting, and processing, do not use regular nonvolatile insecticides that leave residues. In spraying floors, walls, ceilings, tables, and equipment, use only insecticides that are nonresidual, volatile, and labeled nontoxic. After you have sprayed, and before you begin work, use plenty of hot water to thoroughly wash floors, tables, and equipment.

SLAUGHTERING, CUTTING, AND PROCESSING BEEF ON THE FARM

By Richard L. Hiner, food products technologist, Animal Husbandry Research Division, Agricultural Research Service

Success in preparing meat depends on strict attention to the methods used. None of the details of these methods is difficult, but all are important.

SELECTING ANIMAL FOR SLAUGHTER

You should consider several factors before slaughtering and preparing a beef carcass for home consumption. The most important considerations are the breeding, feeding, management, and age of the animal and method of handling the meat.

If at all possible, select for slaughter an animal representing one of the beef breeds. The reason for this is that beef animals are thicker fleshed, fatten more readily, and have more fat over the lean muscles with considerably less internal or waste fats than do dairy breeds. A well-finished beef-type animal will generally dress higher and will cut out more and meatier roasts and steaks.

Feeding of the animal is important because a well-finished animal will yield a carcass that has a moderately thick covering of fat over the shoulders, back, and round, without an excess of internal caul and ruffle fat.

A young animal such as a yearling or a 2-year-old steer or heifer that is moderately well finished and has made good gains usually will produce a carcass having tender and more desirable meat than will an older, more mature animal.

The meat from such an animal, in good condition, will ordinarily be moderately well marbled; that is, there will be small visible white flecks of fat intermingled throughout the crosssection cut of the lean, especially the "eye" of the rib and loin. There will be a rather smooth, even layer of fat over the outside of the dressed carcass. Such an animal will, as a rule, have lean meat that is bright cherry red.

An animal that has been fattened on grass and grain may have slightly yellow fat and be slightly softer in the firmness of the lean. However, this should not detract from the quality of the beef carcass, as yellow color indicates additional carotene, an essential nutritive property.

Proper handling of the dressed beef carcass and cuts is important in insuring quality. The first indication of proper handling is appearance, always a psychological factor and sometimes associated with characteristics of real importance. For example, a change in appearance that may occur is that caused by holding the fresh carcass or cuts at too high a temperature. The exposed lean will be dark and covered with slimy growth, as contrasted to that held for aging at 33° to 35° F. for extended periods to ripen. The latter will be covered with a dry-appearing mold that can be easily removed by trimming. Improper chilling will result in difficulty of cutting and preparing smooth, firm cuts. It must be remembered that one cannot improve the quality of the meat, but one can easily spoil an otherwise high-quality beef carcass.

CARE AND HANDLING OF ANIMAL BEFORE SLAUGHTER

Proper care of an animal before slaughter is the first step in obtaining more high-quality meat from your finished animal.

Pen the animal by itself the day before slaughtering.

Keep the animal off feed 24 hours before slaughtering, but provide access to water at all times.

Running, exciting, or whipping the animal may cause a temporary fever. If the animal is killed in this condition, the meat is likely to be bloody and fiery in color, fail to bleed properly, and have numerous bruised areas that are a complete and unnecessary loss.

SLAUGHTERING

Equipment

Elaborate and expensive equipment is unnecessary but certain tools are essential. The following equipment is recommended:

- Stunning hammer (mechanical) or .22 caliber rifle.
- 6-inch skinning knife.
- Block and tackle or chain hoist.
- Beef spreader (a doubletree will do).
- 28-inch meat saw with heavy blade.
- Pritch pole about 2½ feet long.
- Bucket.
- 12-inch steel.
- Good oil or water stone.
- 12-inch straight-blade steak knife.
- 2½-foot length of log chain with a large ring at one end.
- Ample cold water and clean cloths.

Stunning

Kill the beef animal as humanely as possible and in a way that will insure thorough drainage of blood. Fasten the animal's head securely in a position that will enable you to stun it with one sharp blow with a mechanical stunner or by shooting. The proper place to strike is at the intersection of two imaginary lines extending from the right horn or edge of poll to the left eye and the left horn or edge of poll to the right eye (fig. 1). A sharp blow at this point will immobilize the animal for several minutes. Stunning an animal is preferable to shooting; with shooting, as complete and efficient bleeding is not probable, and the results are bloody cuts, hastened spoilage, and unsightly roasts and steaks.

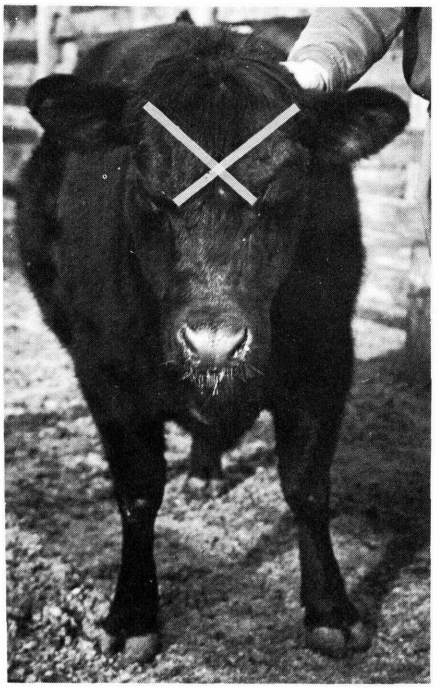

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Figure 1.—Intersection of two lines locates point to stun animal.

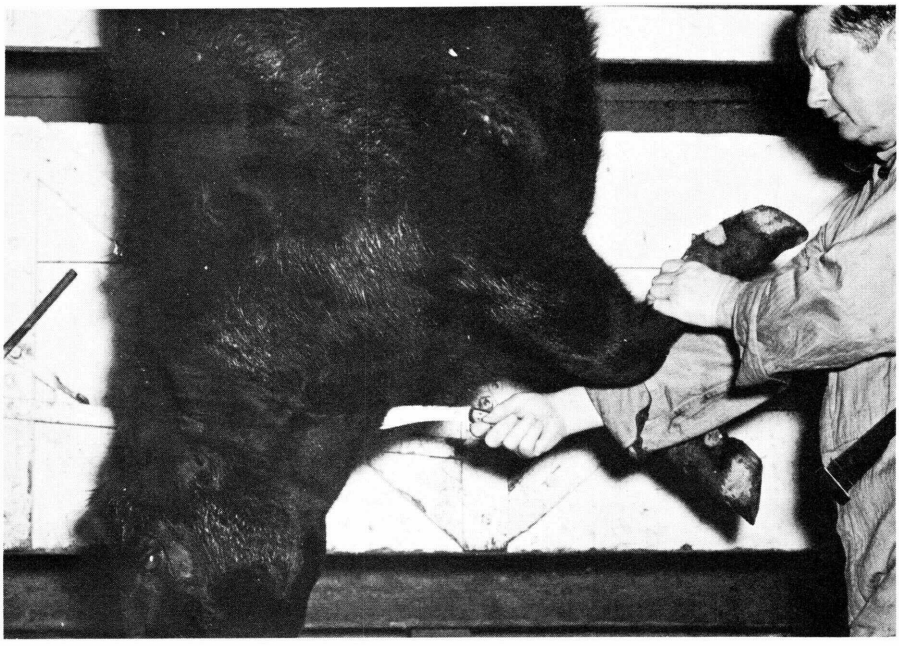

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Figure 2.—Opening skin under neck.

Bleeding

As soon as the animal is down, draw a chain securely around the animal's hind legs and hoist it from the ground. The head of the animal should clear the floor by 18 to 24 inches. Grasp the left foreleg of the animal with your left hand and bend the leg back slightly. With the sharp skinning knife in your right hand, make an incision through the hide a little to the right of the middle of the dewlap. Extend the incision from the crease in front of the forelegs to the jaw bone in the head.

The next step is to turn the knife over (sharp edge up) and, while holding the knife at a slightly upward angle, insert the point into the prepared incision and push it upward toward the point of the breast bone (fig. 2). When you reach the breast bone, follow downward with the point of the knife until the blade just slips under the breast bone (fig. 3) and between the first ribs. Cut straight to the backbone on either side of the gullet, then turn the knife over and downward. This will sever the carotid arteries as they fork just under the point of the breast bone. Take care not to stick too deeply and too far back into the chest cavity, which would permit the blood to accumulate in the chest cavity. Do not stick the heart; let it pump out the blood as long as possible. Make bleeding more complete by pumping the forelegs up and down a few times.

Skinning

Skin out the forelegs and head and remove them as soon as bleeding has been completed. Remove forelegs by first cutting across the leg between the sole of the foot and the dew claws, thus severing the tendon and releasing the tension of the leg. Split the skin over the back of the forelegs from the cut to a point 4 or 5 inches above the knee. Skin around the knees and shins and unjoint at the square joint (fig. 4).

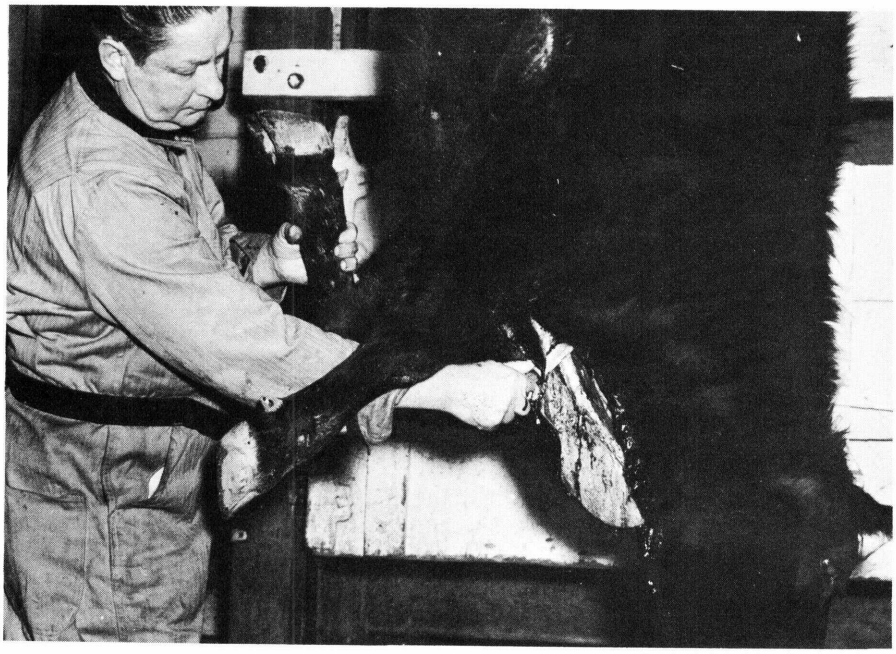

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Figure 3.—Inserting knife below breastbone.

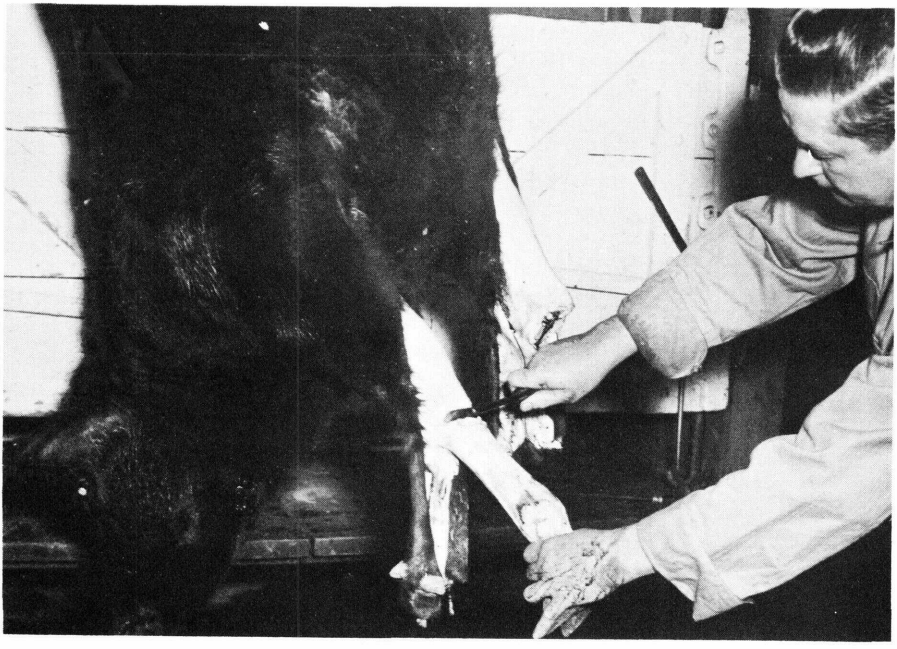

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Figure. 4.—Removing forelegs.

Skin out the head by cutting back of the poll, then open the hide from poll to nostril. Skin across the head and over the right side, then over the left side to the jaws (fig. 5).

Remove the head by holding the loosened hide up in the left hand and cutting across the neck on a line just above the poll or through the Atlas joint (fig. 6).

Immediately on severing the head, thoroughly wash it with cold water to remove any regurgitated food and blood. Remove the tongue by an incision just inside each jaw, cutting forward to the point where they join; cut through the cartilage at the end of the bones that are located at the tongue's base; next, pull the tongue out and complete removal (fig. 7). Remove cheek meat from each side of the jawbone by cutting close to the bone and down to the rise of the bone just over each eye. Now, turn over the head and split with a cleaver or saw to remove the brains. Place the tongue and cheek meat in a bucket of cold water and allow to chill.

Lower the carcass to the floor, roll it on its back, and prop it in place with a pritch pole (fig. 8). Remove the hind legs by cutting across the tendons between the sole of the foot and the dew claws, to permit the leg to relax. Split the skin from the dew claws to the hock and over the rear of the thigh to a point about 6 inches below the hock joint (figs. 9 and 10). Remove the leg bone by cutting around the lowest joint of the hock (fig. 11). You can easily locate this joint with a knife. After marking the joint with a knife, give the leg a quick sideward push, and it will break apart.

Opening Carcass and Siding

As the next step, split the skin from the point in front of the breast bone to the rump. You can do this by first placing the knife in the opening in the neck made for bleeding the animal and drawing it straight back over the brisket and just past the last rib, cutting through the hide and meat over the breast bone (fig. 12).

Now cut the hide at the midpoint between the hind legs, exposing a round muscle. Beginning at the last rib, cut through the hide and abdominal wall and continue the cut back to the opening between the hind legs, exposing the paunch (fig. 13). Make this cut carefully to avoid puncturing the paunch or intestines. It is a good plan to grasp the skin and flesh with the left hand and hold the knife blade with point up and the hand inside the abdominal cavity. Then push the knife in a straight line to the opening between the hind legs (fig. 14).

Split the skin on the inside of the thighs as shown in figure 14, beginning just back of the scrotum or udder, and cutting upward to the split made in removing the hind shank. Turn the knife down flat, with the edge pointed outward and a little upward to avoid cutting the flesh. Skin the inside of the thighs well down, but do not skin the outside of the rounds until the carcass has been raised. Skin the forelegs in similar manner.

The next and most important part of skinning is known as "siding." The knife must be sharp and have a smooth, keen edge, and must be steeled frequently. Keep a separate knife for siding only. Begin the siding by running the knife under the skin that has been cut over the abdomen. Grasp this loosened skin in the left hand and pull it up and outward. Grasping the knife as shown in figure 15, place the knife firmly against the hide, with the blade turned slightly outward to avoid cutting the flat muscles covering the abdomen and side. With sweeping strokes of the knife, continue siding until you cannot conveniently cut down further.

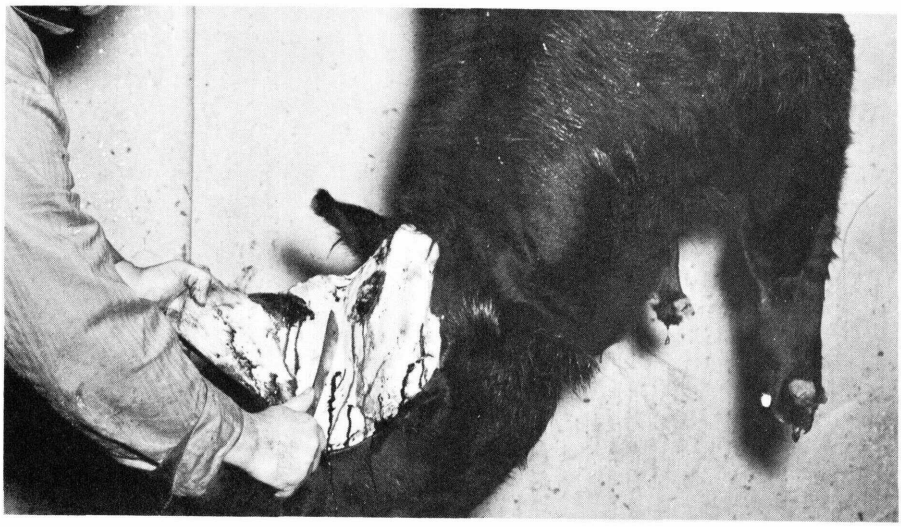

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Figure 5.—Skinning hide from head.

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Figure 6.—Removing head at Atlas joint.

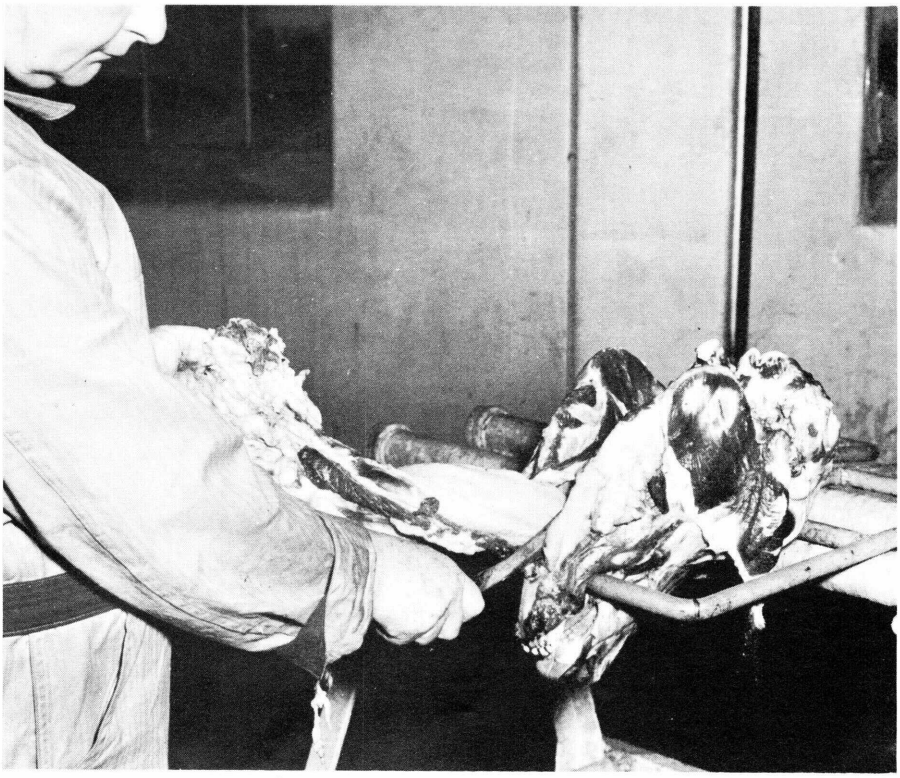

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Figure 7.—Removing tongue.

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Figure 8.—Carcass propped in position with a pritch pole.

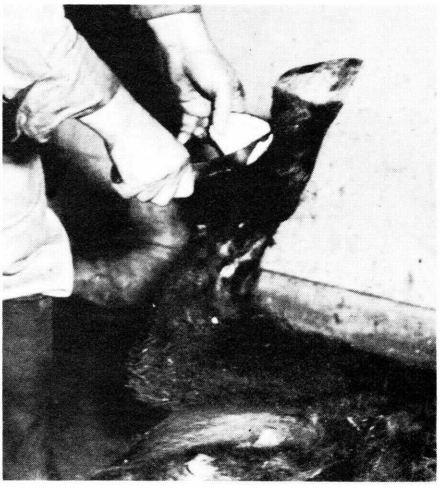

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Figure 9.—Opening skin on hind leg.

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Figure 10.—Leg skinned and knife inserted to divide large tendons.

Remove skin in like manner over the shoulders and round as shown in figure 16. Leave the "fell," or thin membrane that lies between the meat and skin, on the carcass. This membrane protects the meat from drying too rapidly and from attack by molds.

Hoisting

Prepare the carcass for hoisting by first sawing through the breast bone (fig. 17) and completing the separation of the rounds and splitting or sawing the aitch bone (fig. 18). Locate the point at which the aitch bone, or pelvic arch, is cut by finding the middle "seam," a small bony projection that can be felt with the finger just under the front (forward side) of the pelvis. Next, insert the spreader between the large tendons that were separated earlier. Hoist the carcass with a hoist or block and tackle to a convenient working height to skin the rounds. Skin the rounds, being careful to leave the "fell" attached to the fat covering (fig. 19).

Next, cut the hide down the center of the tail to nearly the last joint. Cut joint, pull hide off, then disjoint the tail at its base (fig. 20). Wipe the hocks and rounds with a clean cloth dipped in warm water and wrung dry.

Removing Viscera

Loosen the anus by cutting around it on the two sides and back, then loosen-

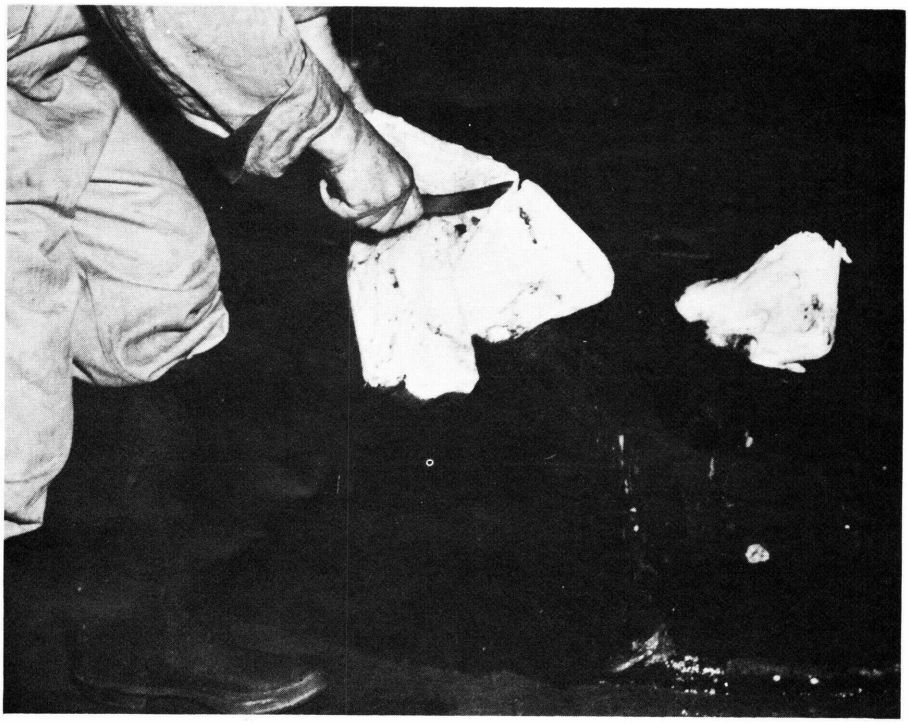

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Figure 11.—Removing shank at lower hock joint.

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Figure 12.—Opening skin over chest cavity.

13436A

Figure 13.—Opening abdominal cavity.

13437A

Figure 14.—Skinning thigh.

ing about 12 to 15 inches of the colon and allowing it to drop down over the paunch. Hoist the carcass until it clears the floor. Place a large container or viscera truck between the forelegs; with a knife, cut free the connective tissue that holds the intestines (fig. 21). Use care not to tear the kidney and bedfat. Pull down on the paunch to tear it loose from the carcass and allow it to fall into a container. As the paunch falls, be sure the liver is not attached to it. A small cut with a knife will free the liver and intestines (fig. 22). Insert a finger under the gall bladder and pull it off. Remove the liver (fig. 23).

Remove the heart and lungs by cutting out the diaphragm (the thin sheet of muscle and white connective tissue that separates them from the stomach and intestines). Allow 3 or 4 inches of the diaphragm to remain attached to the carcass. Grasp the loosened diaphragm and pull it outward and down, loosening the heart and lungs by cutting the large vessel (aorta) attached to the back bone. Remove heart, lungs, and gullet as one unit (fig. 24).

Lower the carcass until it just clears the floor, for convenience of skinning the hind quarters. Remove the hide by grasping the loose leg portions and pull-

ing down (fig. 25). If the hide does not yield readily, loosen it by cutting a little with a knife, then pulling. You can pull the hide over the sides if it has been started properly or "fisted" as shown in figure 26. If these methods do not give satisfactory results, remove the hide with a knife, using the same procedure as in "siding" (fig. 27). Continue removing the hide down over the shoulders, allowing the hide to remain attached over the neck.

Splitting the Carcass

Split the warm, dressed carcass into two halves. This allows for free circulation of air around the halves, thus a quicker chill. A dressed beef carcass is heavy and difficult to handle if it is not split. In splitting a beef carcass, start the split by first sawing through the sacral vertebrae from the inside (fig. 28). As soon as you have made the cut to the rise of the pelvic arch, you can do the sawing more satisfactorily from the back. Before starting to saw from the back, use a knife to mark the line you wish the saw to take. Make this cut over the top of the bony spinal process, which can be easily located with the fingers (fig. 29). Make the split down the center of the backbone and as far as the neck. As the backbone is split, hoist the dressed carcass for convenience sawing.

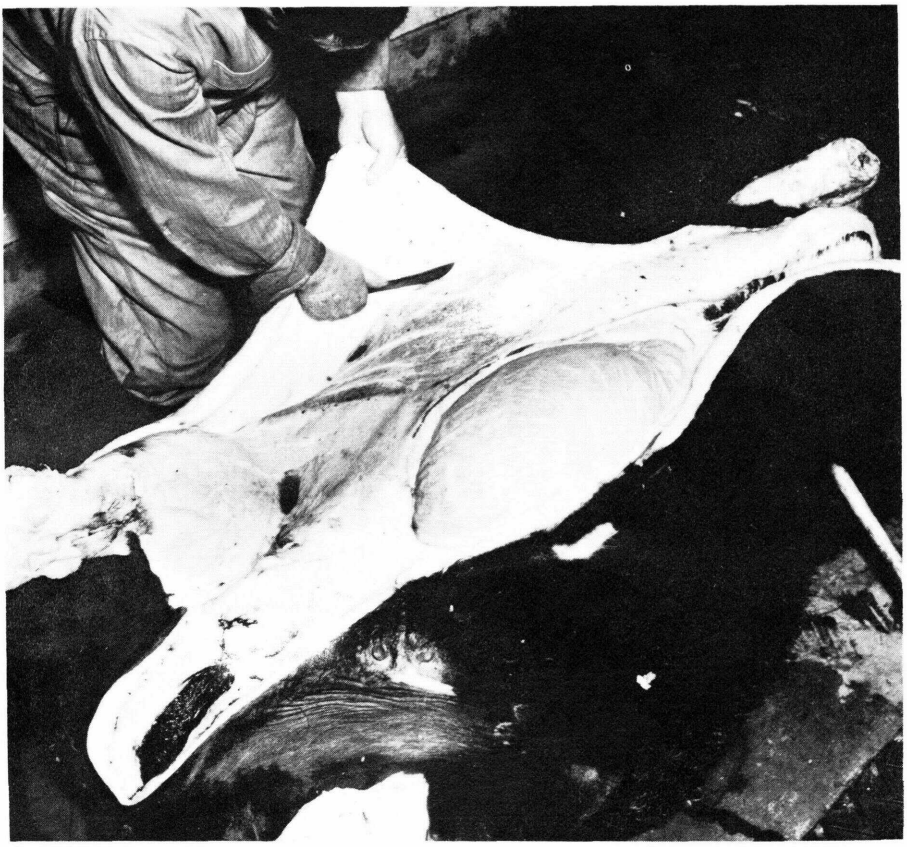

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Figure 15.—Siding—note hide being stretched and angle of knife blade.

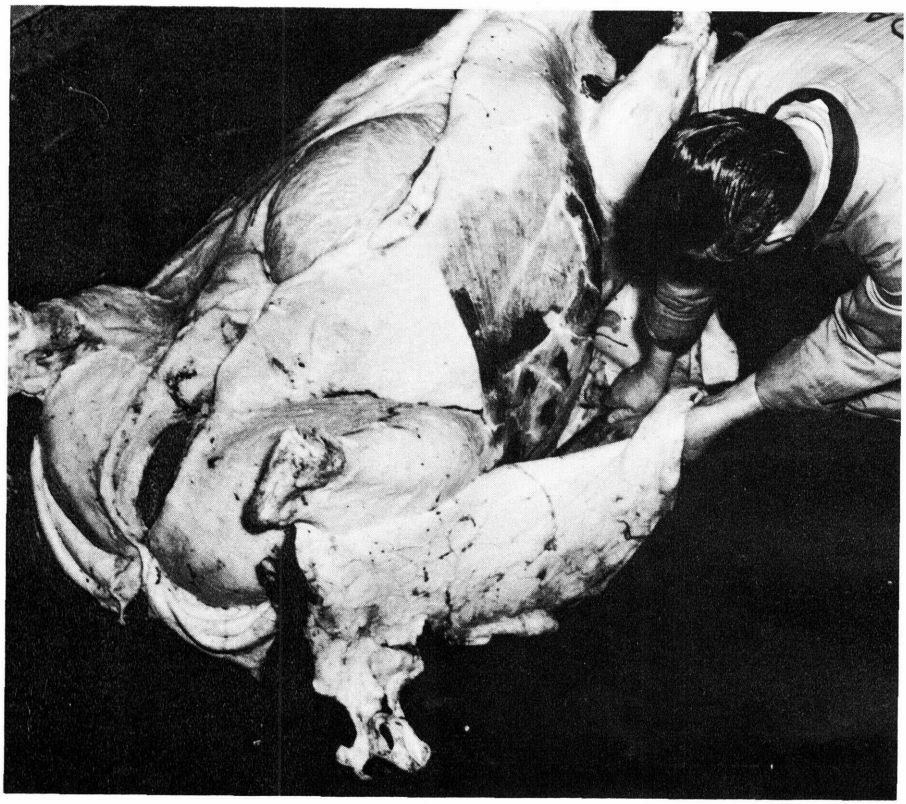

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Figure 16.—Completing the siding.

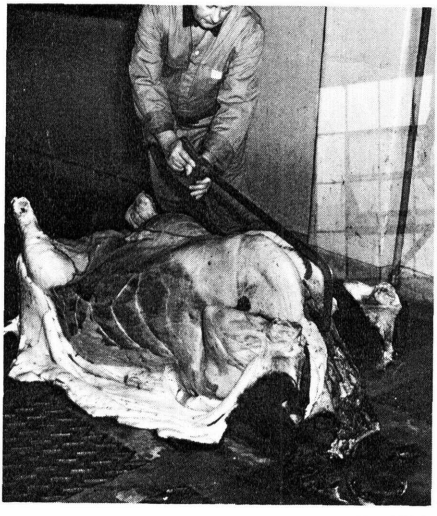

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Figure 17.—Sawing breast bone.

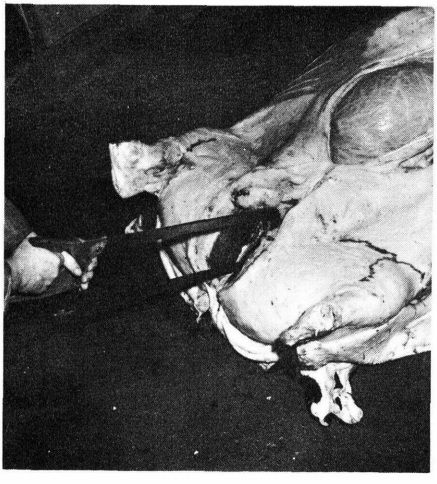

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Figure 18.—Sawing through pelvic arch.

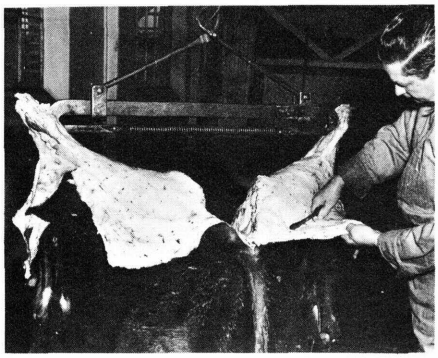

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Figure 19.—Removing ("rumping") hide from rounds.

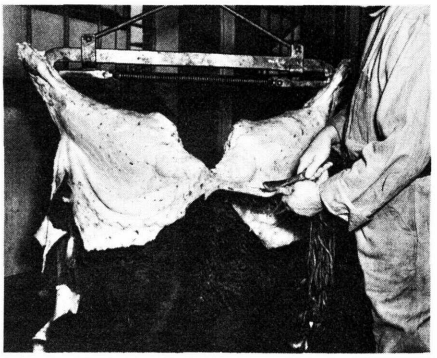

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Figure 20.—Removing hide from tail.

You are now ready to remove the hide from the forelegs and neck (fig. 30). You can split the neck and free the two halves. It is easier to split the neck with a sharp cleaver (fig. 31). Wash the carcass in cold water to remove all blood and dirt. Pump the forelegs up and down a few times to aid in draining blood from the forequarters. Trim loose and ragged pieces of meat.

Examining the Carcass

All the internal organs and the dressed carcass should be carefully examined at the time of slaughter for any abnormalities or conditions that might affect the fitness of the meat for food. The only person qualified to do this is a graduate veterinarian. Bruises, minor injuries, parasites in the organs, and enclosed abscesses, single tumors, and so on frequently are local conditions that can be easily removed. However, the presence of congestion or inflammation of the lungs, intestines, kidneys, inner surface of chest, or abdominal cavity and numerous yellowish or pearl-like growths scattered throughout the organs should be viewed seriously. Carcasses having such abnormalities should be examined by a graduate veterinarian and his opinion obtained as to the wholesomeness of the meat.

Care of the Internal Organs

As soon as you remove the liver, examine it for abscesses and other abnormalities and, if you find it clean, place it in a tub of cold water. Cut off the heart through the auricles and open it to remove any blood clots; then place it in a tub of cold water. As soon as you remove the tongue, scrape it free of all food and chill in cold water (see fig. 7). Cut off the meat along the side of the jawbones and place in cold water to chill. After chilling for an hour or so, remove the liver, heart, tongue, tail, and cheek meat and hang up to drain and dry.

Separate the caul fat from the stomach with the hands. Remove or "run" the small intestines from the ruffle fat by pulling the intestines in one section with the left hand and cutting them free of the fat with a knife in the right hand. You can save the caul and ruffle, if not fouled in dressing, and use as tallow for soap.

The first and second stomachs are frequently used for making tripe. This is prepared by cutting off the two stomachs and emptying their contents by turning them inside out after slitting. Wash the stomachs thoroughly and rinse several times in clean, cold water, then hang up to drain.

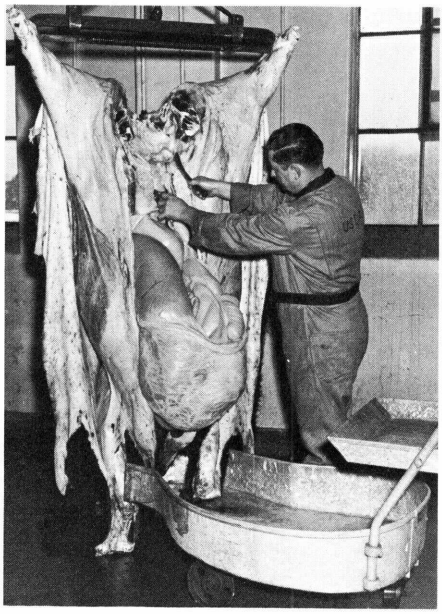

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Figure 21.—Loosening the viscera.

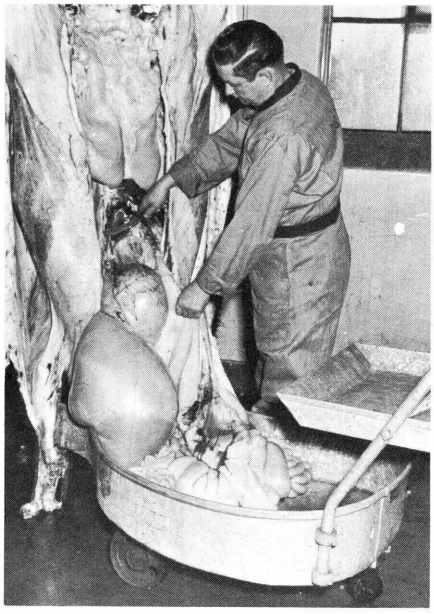

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Figure 22.—Cutting viscera loose from liver.

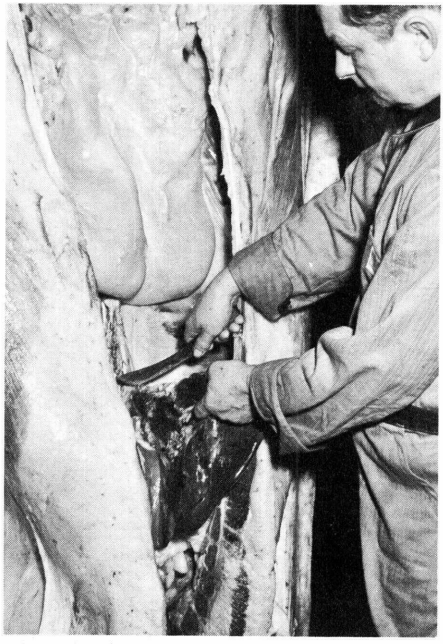

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Figure 23.—Removing liver.

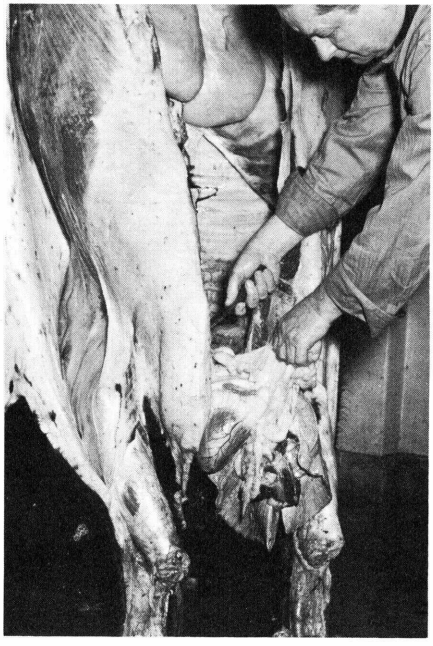

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Figure 24.—Removing heart and lungs.

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Figure 25.—Pulling hide from thigh.

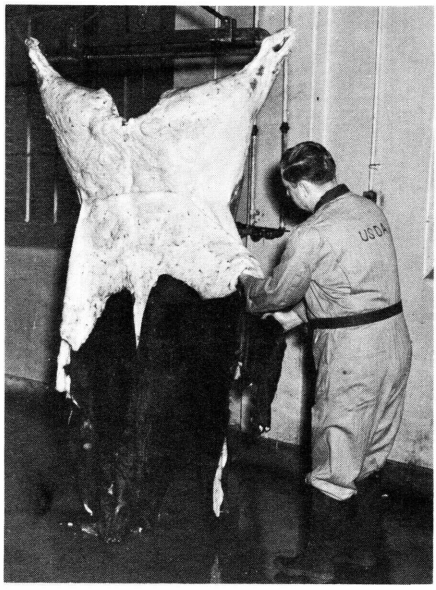

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Figure 26.—Fisting hide.

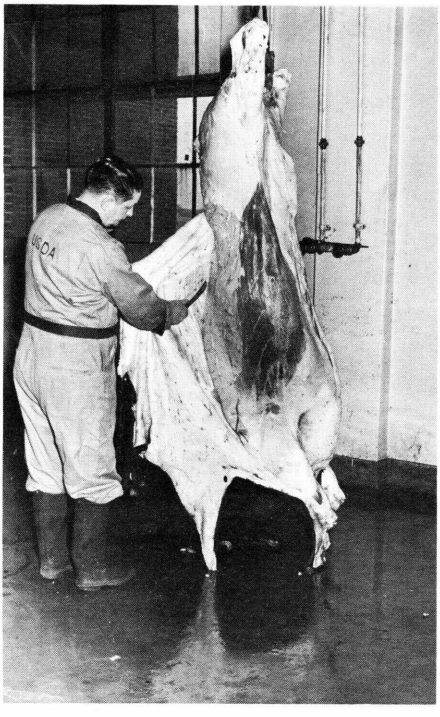

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Figure 27.—Skinning hide from back.

Chilling the Carcass

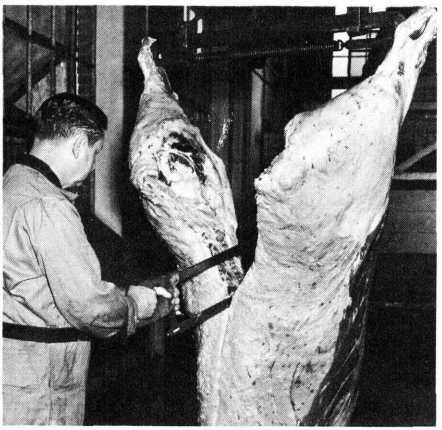
The tissues of many freshly slaughtered beef carcasses contain bacteria that can spoil the meat unless their growth is promptly checked. This is especially true of the thicker portions of the carcass, such as the rounds and shoulders.

Packers have practically solved the problem of bone sours by chilling the fresh, warm carcass to an internal temperature of less than 40° F. within 24 hours. The chilled carcass is held at 32° to 34° F. until cut.

On the farm, do slaughtering when the weather is most favorable. However, do not allow the freshly dressed carcass to freeze during chilling. When necessary to protect it from freezing, hang the carcass in a well-ventilated shed, or wrap it with a sheet. Wrapping not only will help protect against freezing, but will also help to smooth out the outer surface of the dressed carcass. Tightly draw the cloth around the carcass and securely fasten it with skewers.

13451A

Figure 28.—Splitting the sacral vertebrae.



13452A

Figure 29.—Splitting down the back.

13453A

Figure 30.—Removing hide from neck and forelegs.

13454A

Figure 31.—Splitting neck with cleaver.

It is often advantageous to allow chilled dressed beef carcasses to age several days before cutting. This aging allows the meat to pass through a period of rigor mortis, which requires 3 to 5 days. Additional aging of 10 to 15 days, if temperature conditions of 32° to 34° F. are favorable, will be beneficial in improving the tenderness of the meat. Chilled beef carcasses aged for this length of time should be well covered with fat and be protected from the weather, unless they are held in a cooler with controlled temperatures.

Suspend split beef carcasses to chill. Do not allow them to come in contact

with each other. Free circulation of air around the dressed carcass is essential to proper chilling. If hot, dressed sides are allowed to touch, chilling is delayed and bone taint and spoilage will occur. The need for prompt and thorough chilling of warm carcasses cannot be overemphasized.

FREEZER PLANTS

Most communities have access to local cold-storage as well as freezer locker plants with facilities to chill the carcass, prepare and freeze selected cuts, and age or store the fresh meat. Many plants have facilities for slaughtering cattle. If these facilities are not available, or if you wish to do your own slaughtering, you can bring the warm, dressed sides of beef immediately to the cold-storage plant and chill them. After chilling the carcass and aging it for the desired time, you should return to cut the beef and prepare it for the freezer or curing. In a cooperative cold-storage plant, nominal charges often can be obtained.

CUTTING

Cutting the Carcass

There is no one *best* method for cutting a beef carcass. The choice depends on how the beef is to be used. If it is to be sold, the cuts should conform to local preferences. If the meat is to be preserved by freezing, each piece should be of a size and character suitable for convenient cooking. The purpose of the method described here is to produce the maximum quantity of meat that can be preserved and stored.

Quartering or "Ribbing"

Locate the last rib, or count up 12 ribs from the neck. Insert the knife blade between the twelfth and thirteenth rib at a point midway between the backbone and flank, marked *number 1* in figure 32. Following the angle of the rib, cut on a line parallel with the ribs to the backbone, marked *number 2* in figure 32. Turn knife around and cut toward the flank. As soon as the knife has cut through the cartilage at the end of the ribs, arch it downward until the cut is on the same level as that at the backbone, marked *number 3* in figure 32, leaving 4 or 5 inches of the flank uncut to hold up the forequarter when the backbone has been sawed (fig. 33).

The Forequarter

At this point, remove the prime rib. Count up five ribs and insert knife between the fifth and sixth rib, making a short cut (fig. 34). At *number 1* (fig. 32), mark a point that is about two-thirds of the distance between point *number 2* and the bottom or end of the cartilage (point *number 1*, fig. 32). From point *number 1*, cut on a line from *1* to *4* and across to *number 6* (fig. 32). With a hand meat saw, cut through the rib bones (*1* to *4*) and then the backbone at *number 6* (figs. 35 and 36).

Free the remaining forequarter by cutting the flank at point *number 3*. Place rattle on table, bone side down. Remove foreshank by marking line *4* to *5* (fig. 32), and sawing across large bone (fig. 37). Now cut shank free. The cut across the humerus should be at right

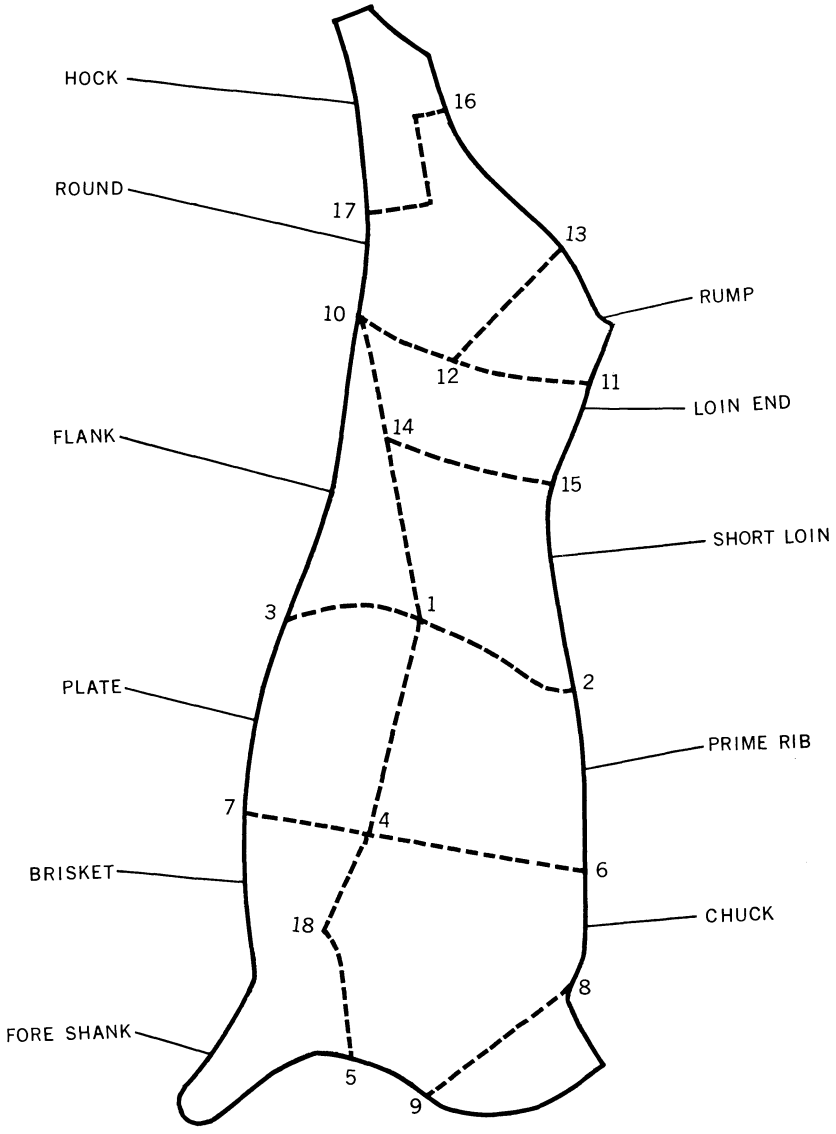


Figure 32.—Side of beef with primary cuts outlined and named.

angles to the humerus and about 3 inches up from the joint (see point *A*, fig. 37). Cut through the meat to the ribs along line *4* to *5* (fig. 32). Saw along this line and remove plate and brisket (fig. 38). Remove neck by cutting on line *8* to *9* (fig. 32), marking it first with a knife and then sawing through the neck vertebrae (fig. 39).

You are now ready to divide the forequarter cuts into usable pieces. The square-cut chuck can be divided into pot roasts by first cutting a roast of the desired thickness over the fifth rib, then over the round bone, and so on. If you desire, you may remove several steaks first (fig. 40). Cut the foreshank into several small sections for boiling (fig.

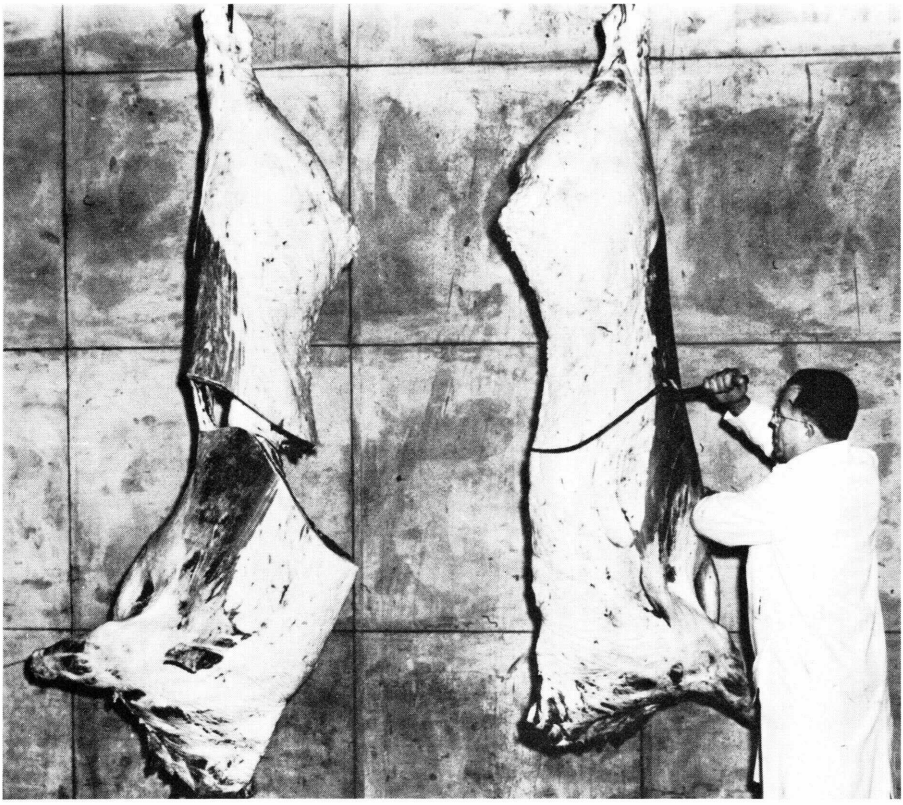


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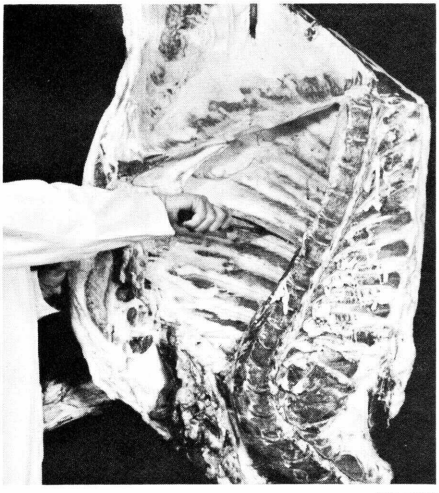
Figure 33.—Separating carcass into fore and hind quarters.



N20882

Figure 34.—Marking point to remove prime rib.

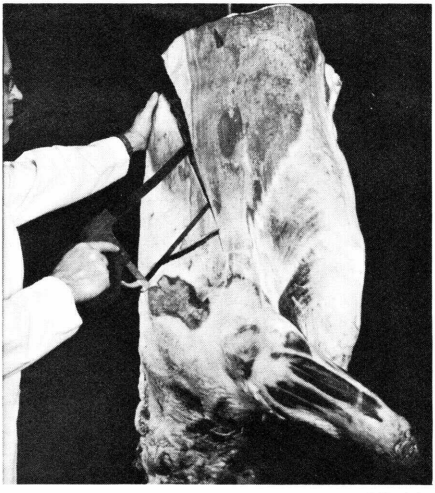


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Figure 35.—Separating prime rib from plate.

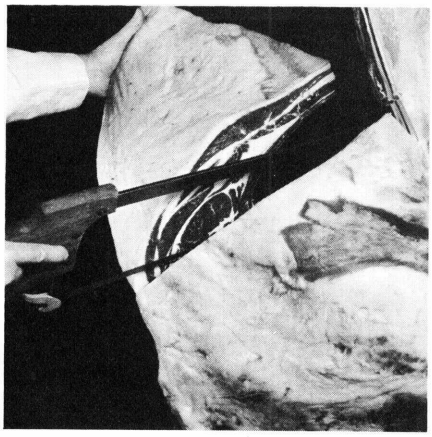

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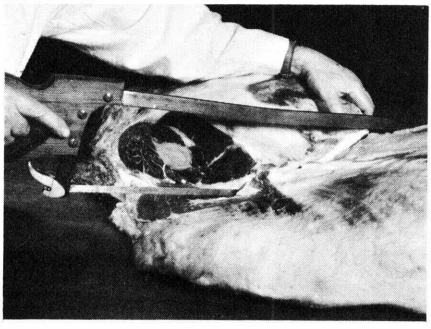
Figure 36.—Sawing prime rib from chuck.



N20886

Figure 38.—Removing plate and brisket from chuck.

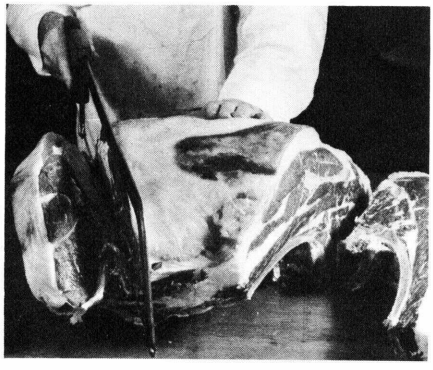


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Figure 40.—Dividing chuck into pot roasts.

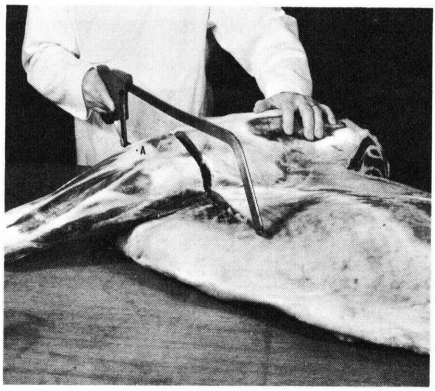

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Figure 37.—Removing foreshank.

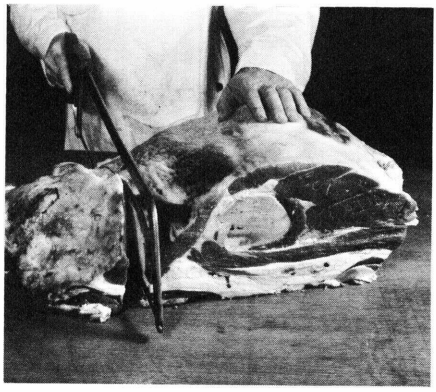

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Figure 39.—Removing neck.

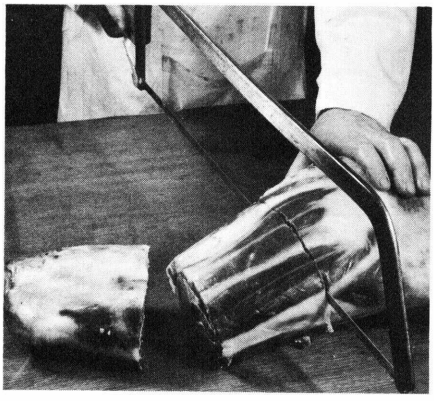

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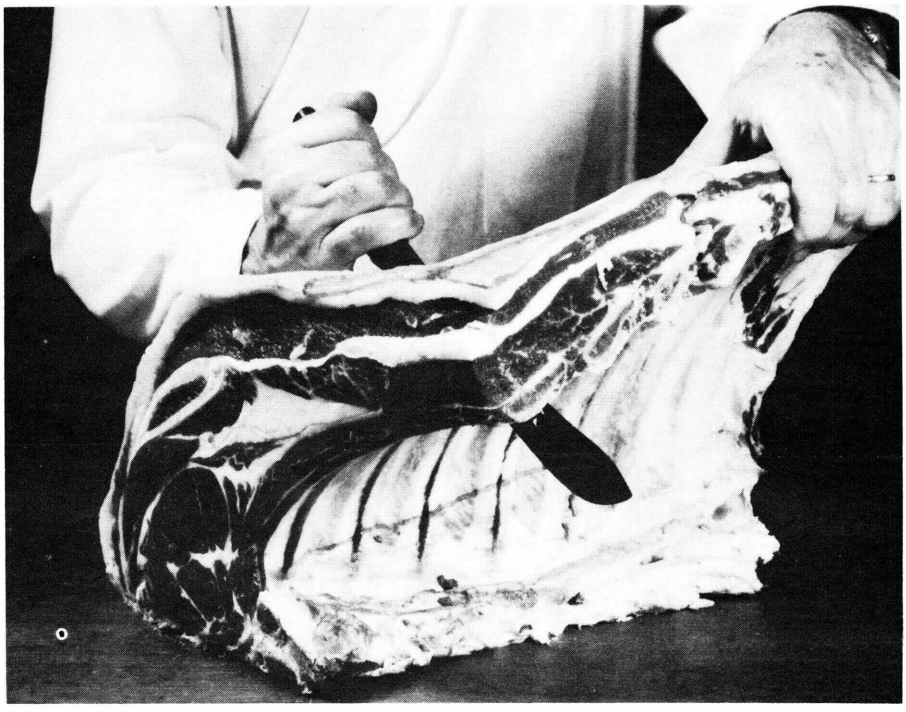
Figure 41.—Sawing foreshank into soup bones.



N20890

Figure 42.—Dividing prime rib into standing rib roasts.

41), or bone it and grind the meat as hamburger, and use the bone for soup. Divide the prime rib into several standing rib roasts, each consisting of one or more ribs (fig. 42). Strip the outer white fascia from the breast by first making a cut along the edge, then raising it with the fingers and stripping out (fig. 43).

You can divide this long breast cut into brisket and plate by separating it into two parts, line *4* to 7 in figure 32 (fig. 44). The brisket portion is useful as corned beef. Cut the plate in half, then into sections consisting of one to three ribs and use as short ribs (fig. 45). Bone the neck portion and use the meat as hamburger and the bone for soup.

The Hindquarter

Lay the hindquarter on the table with the inside of the carcass up. Remove the flank by cutting from *10* to *1* (figs. 32 and 46). The cut at *10* should expose a small piece of lean. Remove the kidney knob by first cutting under the fat, then pulling the kidney knob out (fig. 47).

N20891

Figure 43.—Removing fascia from plate.

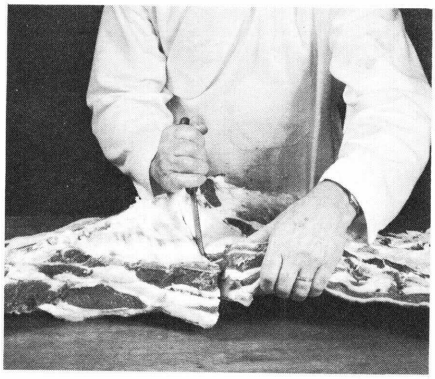


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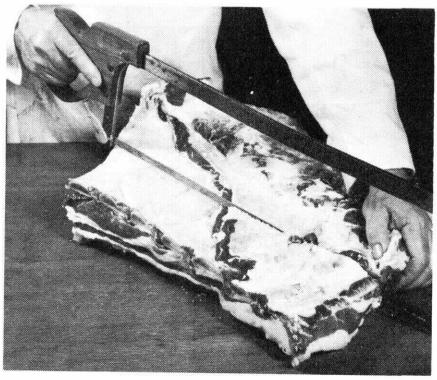
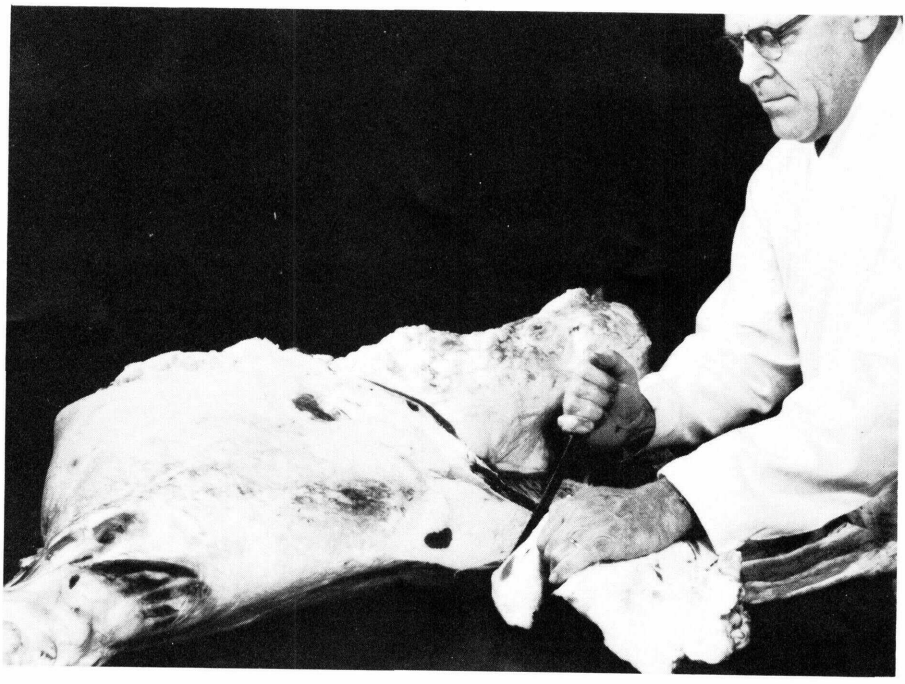
Figure 44.—Separating breast into plate and brisket.



N20893

Figure 45.—Cutting plate into short ribs.



N20894

Figure 46.—Removing flank.

You are now ready to separate the loin from the round and rump. Do this by locating point *11*, which is about halfway between the tail head and the start of the rise of the pelvic arch, or about four sacral vertebrae. With a knife cut a straight line from this point *(11)* and about 1 inch in front of the aitch bone to the point at which the flank was removed (line *10* to *11*, fig. 32). After marking this line and cutting to the bone, saw through the bone and continue the separation with a knife. Use a knife to cut through the thick

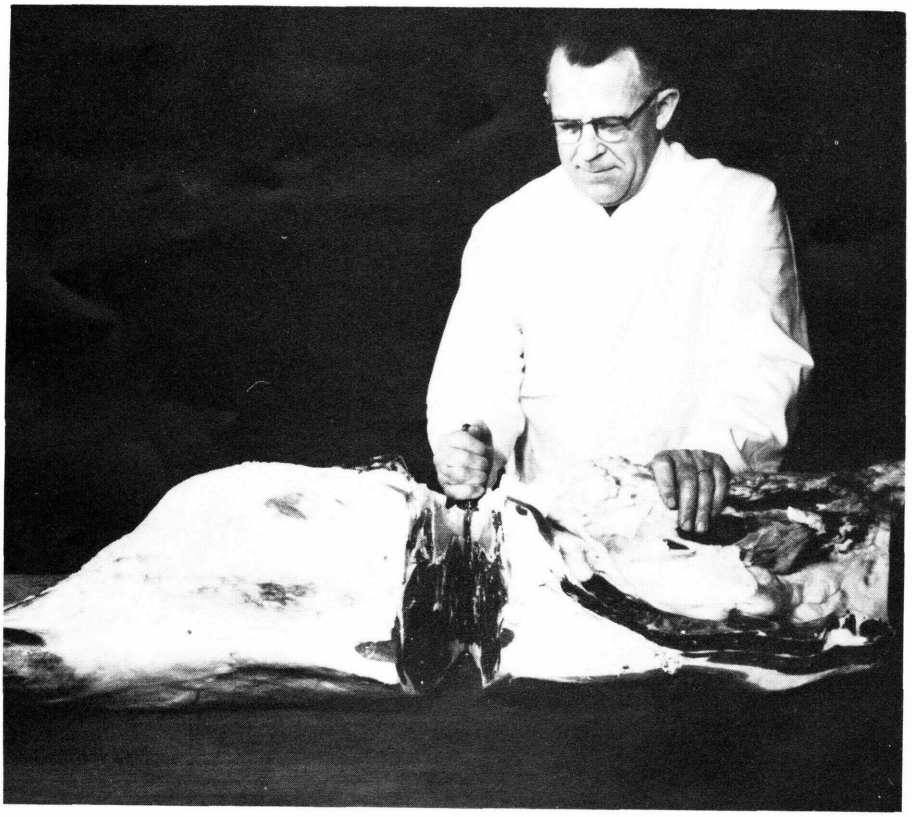
meaty portion, thus avoiding a rough irregular cut surface (fig. 48).

Separate the rump from the round by cutting on line *12* to *13* (fig. 32). Make this cut just back of and parallel to the pelvic bone, extending straight to either edge (fig. 49). Remove the hind shank by cutting through the meat to the bone on back of the shank, turning the knife up and following the bone to the joint (line *16* to *17*, fig. 32). Now, work the knife between the joint and finish the cut (fig. 50).

You are now ready to cut the hindquarters into usable pieces. Divide the loin, consisting of the short loin and loin end, along line *14* to *15* in figure 32 (figs. 51 and 52). The joint at which

N20895

Figure 47.—Removing kidney knob and bed fat.



N20896

Figure 48.—Separating loin from round and rump.

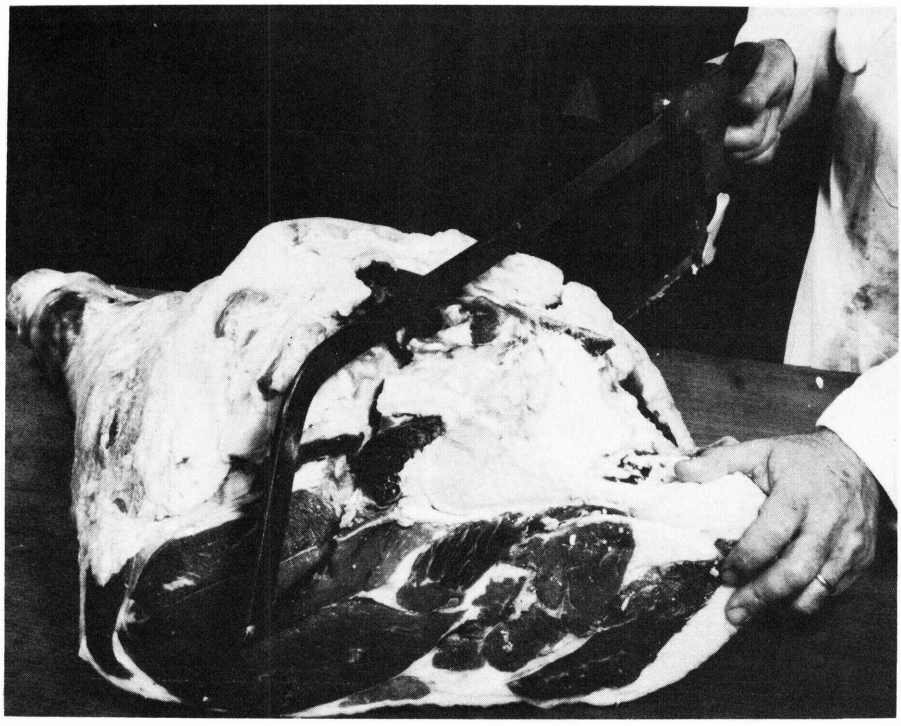


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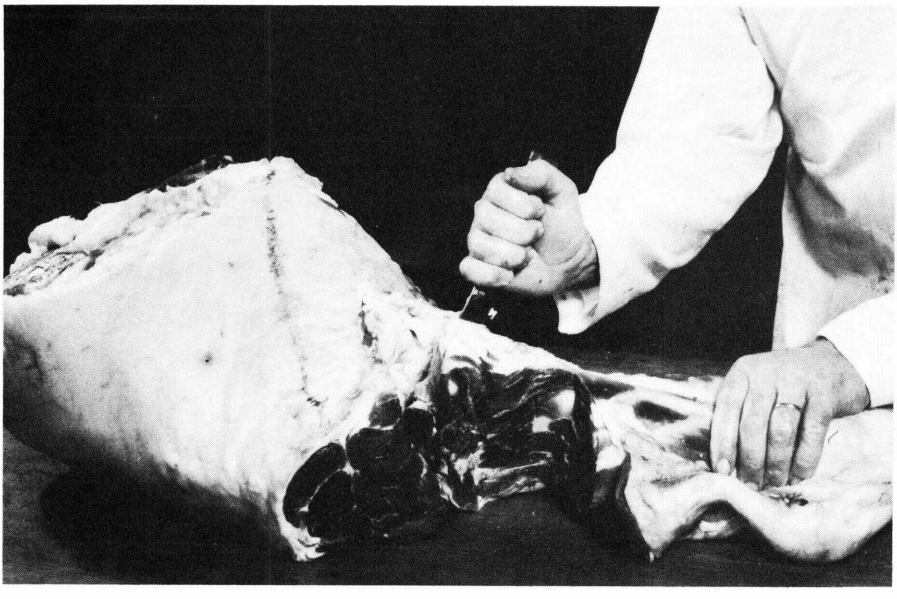
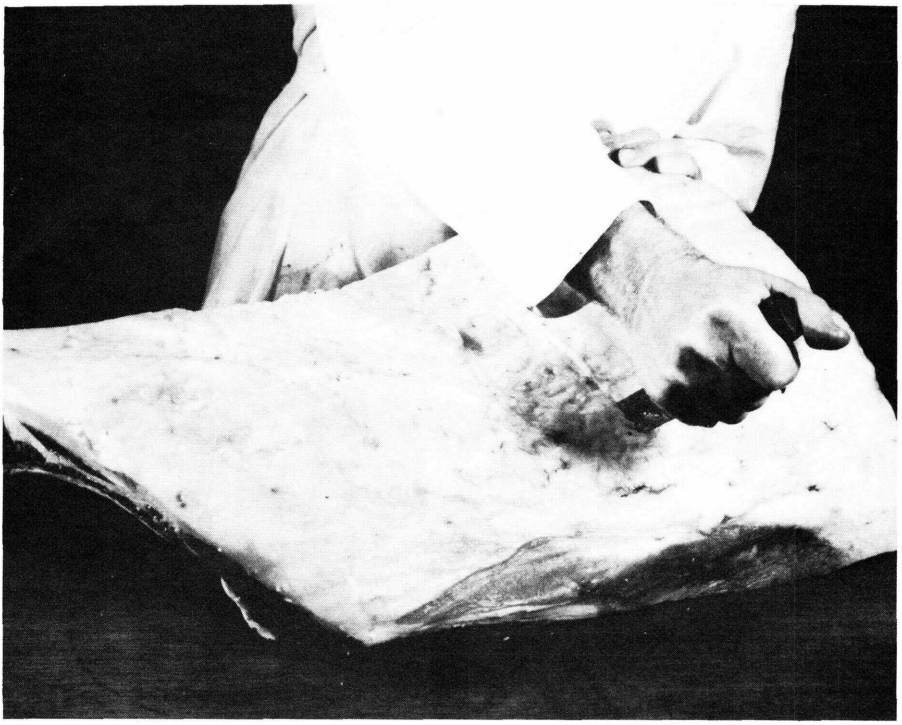
Figure 49.—Separating rump and round.



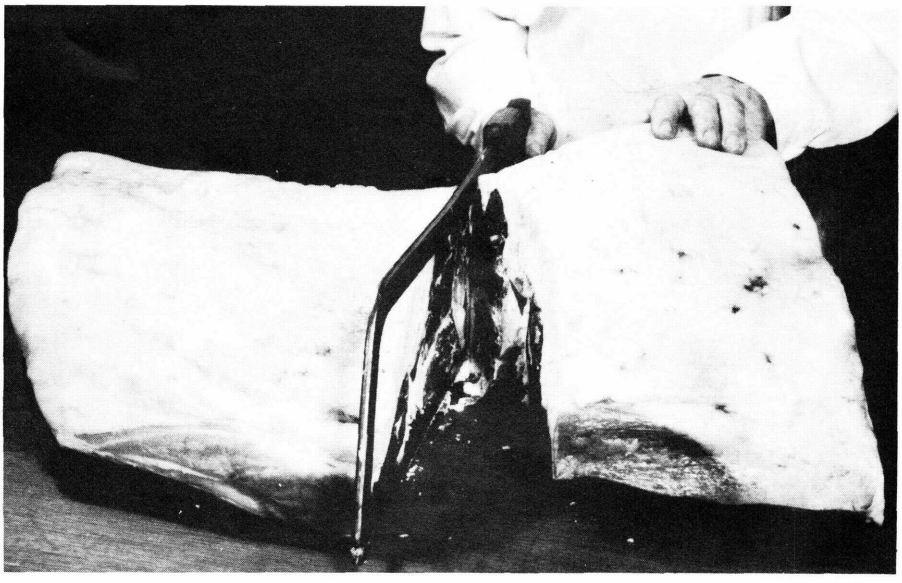
N20904

Figure 50—Removing hind shank from round.



N20900

Figure 51.—Marking separation of short loin and loin end.

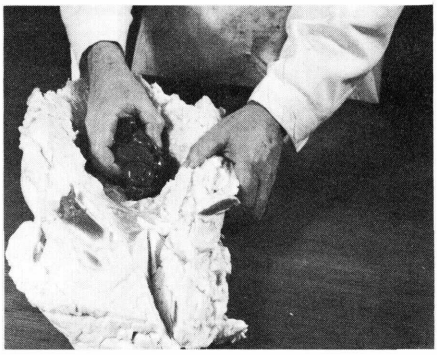


N20901

Figure 52.—Separating loin into short loin and loin end.

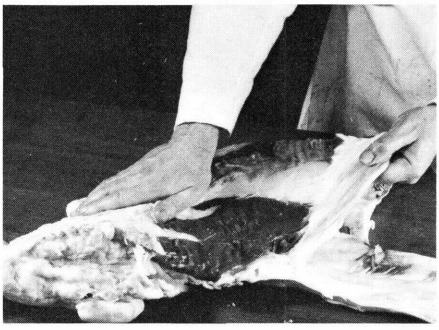
N20902

Figure 53.—Cutting porterhouse steaks from short loin.



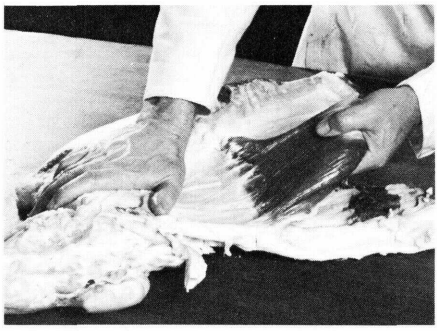
N20897

Figure 54.—Removing kidney from kidney knob or fat.



N20898

Figure 55.—Removing white membrane from lean of flank.



N20899

Figure 56.—Removing flank muscle from flank.

this separation starts is the cartilaginous end of the hip bone. These two cuts contain the club, porterhouse, and sirloin steaks. The porterhouse steaks are those that have a large portion of the tenderloin muscle (indicated by arrow in figure 53). Cut the steaks to the thickness you prefer.

Remove the kidney from the knob of fat by cutting through the fat to the kidney, being sure to cut the white membrane covering the kidney. With your hands, spread or break the fat apart and slip the kidney out (fig. 54).

You may separate the flank into fat and lean; grind the latter as hamburger, or remove the flank muscle and use it as flank steak. You must first pull the white tough covering from the lean muscle (fig. 55), then cut the small end loose and pull the muscle out (fig. 56). To use this muscle as a steak, lay it on the table and with a sharp knife divide it into two parts. Remove the aitch bone from the rump, then roll, tie, and trim the boneless rump. You can divide the round into three parts by following the seams between the large muscle. This gives the inside, outside, and a heel of round roast. If you prefer, you can cut steaks from the entire length of the round. However, you should cut the last 6 inches into small pieces for stew meat or grind for hamburger. You can handle the hindshank the same as the foreshank.

YIELD

Approximate yields of trimmed quarters from an animal weighing 750 pounds and a dressed carcass weighing 420 pounds are as follows:

Trimmed quarters	*Live weight (percent)*	*Carcass weight (percent)*	*Yield (pounds)*
Hindquarters	27.5	49.0	206
Forequarters	28.5	51.0	214
Total	56.0	100.00	420

Approximate yields of trimmed beef cuts from dressed forequarters weighing 214 pounds and dressed hindquarters weighing 206 pounds are as follows:

Trimmed cuts	*Live weight (percent)*	*Carcass weight (percent)*	*Yield (pounds)*
Steaks and oven roasts	23.0	41.0	172
Pot roasts	11.5	20.0	84
Stew and ground meat	11.5	20.0	84
Fat trim and bone	10.0	19.0	80
Total	56.0	100.00	420

PROCESSING

Fresh beef is perishable, and you should keep it under refrigeration temperatures from 34° to 36° F. at all times. Beef, unlike pork, can be improved by aging. However, it is advisable to allow the carcass to hang only about 7 days, then cut and process. If you desire additional aging, hold only the ribs, loins, and rounds for the additional time, which may vary from 1 to 6 or 7 weeks, the length of time depending on your preference. Aging does result in more tender meat and, if the beef is allowed to age long enough, a distinct flavor will develop. This characteristic flavor is desired by some and not by others. Only beef of the better grades should be considered for aging.

You can preserve farm beef in three ways: by freezing, curing, or canning. Each method results in a product that has its own characteristic flavor.

Freezing[2]

Freezing beef does not improve its quality; therefore, use only beef of high quality. Tenderness is temporarily improved by freezing, although this is lost after 4 to 8 weeks of storage. To maintain the original quality, be sure to—

- Freeze only high-quality cuts.
- Prepare and freeze cuts promptly (not more than 15 days after slaughter).
- Prepare convenient, family-size packages.
- Protect meat from drying out (freezer burn) and oxidation by packaging in airtight and moisture-vapor resistant materials.
- Label and date each package.
- Freeze at —10° F. or lower.
- Store at 0° F. or lower.

[2] For further information on freezing meat and fish in the home, consult your county agricultural agent or write to the U.S. Department of Agriculture, Washington, D.C. 20250.

- Use ground meat within 4 months.
- Do not store frozen meat more than 12 months.

Frozen beef can be cooked thawed or unthawed. If you thaw meat before cooking, do it in a refrigerator. Cook thawed meat immediately or keep for only a short time in a refrigerator. Avoid refreezing thawed meat. If refreezing is necessary, do it promptly.

Any unthawed roast requires about one-third longer to cook than a thawed roast. Unthawed steaks may take about twice as long as thawed.

Curing

You can cure beef in two ways—by making it into corned beef or dried beef. Both methods use a combination of dry and brine curing in which salt, sugar, and saltpeter (potassium nitrate) are used.

Corned Beef

Corned beef is generally made from the cheaper cuts and those that have considerable fat, such as the plate, rump, and chuck.

Remove all bone from the cut and, to facilitate packing, cut pieces into uniform thickness and size. For each 100 pounds of meat, use 8 to 10 pounds of coarse salt. Spread a layer of salt on the bottom of a clean, sterilized wooden barrel or stone crock. Next, pack a layer of meat in the container; sprinkle with salt and add the next layer of meat and salt, and so on. Lightly rub each piece of meat with salt before packing. Allow the packed meat to stand for about 24 hours, at which time cover with a brine made up as follows: For each 100 pounds of meat, use 4 pounds of sugar, 4 ounces of saltpeter and 2 ounces of baking soda dissolved in 4 gallons of water. After covering with brine, weight the meat down.

High-quality corned beef requires from 30 to 40 days of curing. At the end of the curing period, remove the corned beef from the cure as needed, wash, and dry or smoke.

Keep a close watch on the brine as it may become ropy, especially if the temperatures rise much above 38° F. When this happens, remove the meat, wash thoroughly in warm water, repack in a new clean container (or in the original container, thoroughly washed and sterilized), and cover with new brine.

Dried Beef

Dried beef is made from the heavier-muscled cuts, especially the round. Cut the muscles lengthwise or prepare as a whole muscle. The curing procedure is the same as that used for corned beef except that you may add an extra pound of sugar for each 100 pounds of meat. After the meat is cured, remove it from the brine, wash, and hang up to dry for 24 hours. Smoke the cured meat in the regular manner at a temperature of 130° to 140° F. for 70 to 80 hours or until quite dry. The dried beef is ready to be used or it can be hung in a dry, dark room or wrapped and hung up for storage. Dried beef is usually cut very thin for use.

Smoking Beef

Smoking cured meats probably aids in its preservation. It does give the meat a more desirable flavor and color, and dries it out more rapidly. The same smokehouse and procedures used for cured pork work well for beef.[3]

You may store smoked dried beef in the smokehouse if it is ventilated and free of flies. A cool, dry, dark and well-ventilated basement (free of flies) is a satisfactory storage area.

[3] For further information on slaughtering, cutting, and processing pork on the farm, consult your county agricultural agent or write to the U.S. Department of Agriculture, Washington, D.C. 20250.

Canning[4]

You can very satisfactorily preserve beef by canning if you do it properly. The most effective method is the steam-pressure canner, where sterilization temperature of 240° F. is obtained and can be held for the proper length of time. A water bath or a steamer without pressure does not result in a sufficiently high temperature to produce an effective sterilization.

Use only clean and sound beef for canning. You may can beef soon after chilling, as aging has little or no effect on the flavor or tenderness of canned meat. Remove all excess fat covering from beef before canning.

Preparing Beef Products

Pickling Tripe

After you have thoroughly cleaned and rinsed the tripe in cold water, scald it in hot water (a little below the boiling point). When sufficiently scalded, remove the inside lining of the stomachs by scraping, which will leave a clean, white surface. Boil tripe until tender (usually about 3 hours) and then place in cold water so that you may scrape the fat from the outside. When you have done this, peel off the membrane from the outside of the stomach, and the clean, white tripe is ready for pickling.

Place the tripe in a clean, hardwood barrel or earthenware jar, and keep submerged in a strong brine for 3 or 4 days. Rinse with cold water and cover with pure cider vinegar or a spiced pickling liquid. Place a weight on the tripe to keep it from floating on the surface of the liquid.

[4] For detailed instructions on home canning of meats, consult your county agricultural agent or write to the U.S. Department of Agriculture, Washington, D.C. 20250.

Making Hamburger

Grind lean beef, such as the round, neck, flank, and trimmings, and a little fat, in a sausage grinder. If you desire, add a small amount of bacon for flavor. For seasoning, about 1 pound of salt and 4 ounces of pepper are sufficient for 50 pounds of meat.

Bologna-Style Sausage

In making bologna, for each 20 pounds of beef, add 5 pounds of fresh pork. Grind the meat coarse, then add the seasoning and grind through the fine plate.

For seasoning 25 pounds of meat, ½ pound of salt, and 2½ ounces of pepper are usually satisfactory. Garlic may be added if desired.

Add 3 to 4 pints of water to this quantity of meat. Mix with the hands until the water is entirely absorbed by the meat. When thoroughly mixed, stuff into soaked beef casings or "rounds," and smoke the bologna from 2 to 3 hours at a temperature of from 60° to 70° F.

After smoking, cook the bologna in water about 200° F., or slightly below the boiling point, until it floats.

Keep the sausage in a dry place for immediate use, or can it by packing in cans, covering to within one-half inch of top with the liquid in which the bologna was cooked. Then heat it to a temperature of 250° F. for 45 minutes, or at 15 pounds steam pressure.

SHIPPING FARM MEAT INTERSTATE

Farmers who ship their meats must comply with State and Federal regulations. For details about these regulations, consult your county agricultural agent or write to the U.S. Department of Agriculture, Washington, D.C. 20250.

HANDLING THE HIDE

Remove dirt, blood, and any pieces of flesh on the hide by scraping with the back of a butcher knife and by careful cutting. Allow the hide to lose its animal heat before applying salt. When the hide has cooled sufficiently, spread it, hair side down, being sure to straighten out all folds and laps. Sprinkle fresh, clean salt over the flesh side of the hide, using about 1 pound for every pound of hide. See that all parts of the flesh side receive a sprinkling of the salt. Be sure to use plenty of salt and rub it in well along cut edges, head, neck, legs, wrinkles, and the heavy portions.[5]

[5] For detailed instructions on proper handling of beef hides, consult your county agricultural agent or write to the U.S. Department of Agriculture, Washington, D.C. 20250.

SLAUGHTERING CALVES

Most veal is produced in this country from calves between 1 and 3 months old, weighing from 160 to 200 pounds.

Stun the calf before sticking it (as in killing cattle), but the blow need not be heavy. The work is made easier if you hoist the carcass to a convenient height before skinning. Wash the hide and split the skin from head to tail, following the middle line of the belly. If you cut the carcass on the farm, remove the hide at once, as the carcass can be skinned more easily while it is still warm. Use a knife to start the skin, then "fist" off the hide. Remove the offal, and split the breastbone and pelvis, as described for beef.

Most veal calves have little or no outside fat covering. Cut and process the carcass and meat as soon as possible to avoid dark, dried surfaces and excessive loss of moisture.

Cut and process veal carcasses the same as with the beef carcass. Because of the lack of finish, do not make corned beef or dried beef from veal or calf meat.

This bulletin supersedes Farmers' Bulletin 1415, "Beef on the Farm—Slaughtering, Cutting, Curing."

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